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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,061	06/01/2000	Samuel M.D. Norville	9105-3/JMD	5737

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EXAMINER

LIN, KUANG Y

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 05/07/2003

20

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/585,061	Applicant(s) NORVILLE ET AL.	
	Examiner Kuang Y. Lin	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 24-26 and 31-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19, 24-26, 31-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

Art Unit: 1725

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-19, 24-26, and 31-38 are again rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 5,098,487 to Brauer et al for the same reasons as set forth in the last office action.

Namely, Brauer et al shows a die casting method by cooling a molten metal in a vessel and stirring the same with either a mechanical means or an electromagnetic means to form a semisolid slurry, discharging the slurry into a casting chamber which contains insulated wall and may include an induction heating means (see col. 8, lines 17-50 and figure 6). It would have been obvious that an induction heating means is not required shall the insulated wall is sufficient to prevent solidification of the slurry. With respect to claims 2-8 and 26, the specific casting cycle time depending on the molten

Art Unit: 1725

metal composition, the grain size of the slurry and thus the final product to be obtained, the cooling rate, etc., it would have been obvious to obtain the optimal casting cycle time through routine experimentation. With respect to claims 9 and 16, it would have been obvious to use a transferring device for delivering molten metal to the vessel when the molten metal was melted at different location than the caster. With respect to claims 10 and 13, it would have been obvious to set up the apparatus ready for process the molten metal before pouring the same therein. With respect to claims 11, 12, 14, and 15, it is a common knowledge that the heat transfer process can be regulated through the use of cooling means, heating means or insulating means. It is a common practice to use robot for carrying out the routine operation. With respect to claims 17 and 18, it is a common practice to either electromagnetically stir the molten metal to cause the same flow circumferentially or longitudinally (see applicant's admitted prior art as set forth in junction paragraph between pages 7 and 8 of the specification). With respect to claim 19, it is conventional to add reinforcement particles into molten metal before casting such that to form a metal matrix composite article if the composite article is designated. With respect to claim 31-34, it would have been obvious to change the any power supply parameter to control the strength of the EM field in response to the strength of the stirring force required. With respect to claim 36, it is a common practice to use a temperature sensing means to detect the molten metal temperature in the vessel such that to regulate the casting process. With respect to claim 38, it would have been obvious to arrange any combination of different type of conventional stirrers (as

Art Unit: 1725

set forth in junction paragraph between pages 7 and 8 of the specification) to obtain a synergetic.

4. Applicant's arguments filed April 22, 2003 have been fully considered but they are not persuasive.

a. In page 11, 1st paragraph of the response applicants stated that the examiner failed to provide specific comments with regard to claims 10-15, 25, 32-34, and 36. Notwithstanding the claimed features are deemed to be common knowledge of those of ordinary skill in the casting art, the examiner set forth the reasons of obvious in the preceding paragraph.

b. In page 11, 2nd of the response applicant stated that whether or not the casting chamber (70) Brauer et al includes induction means or only thicker, higher R-value insulated walls, the reality is that the slurry that is gradually deposited into the casting chamber (70) must be heat or at least must have its cooling rate reduced in order to prevent solidification of the slurry. However, since Brauer et al discloses that the casting chamber (70) contains insulated walls 72 and may include an induction heating means to prevent solidification of the slurry, the induction heating means is not must required. Also, the claimed scope does not exclude the use of insulated wall in the casting chamber. Thus, the claimed scope does not define over Brauer et al. Applicants further argument that Brauer et al deposit slurry into the casting chamber (70) in gradual manner. However, the term "gradual" is a relative term, the speed of deposition in Brauer et al and that of instant process are considered to be the same or similar, i.e.

Art Unit: 1725

both are in gradual manner. Further, the scope of instant claims does not make any distinction between Brauer et al and instant process with respect the manner of deposition.

c. With respect to the term "slurry billet", the slurry exited from the opening (66) is considered to be a "slurry billet".

d. With respect to the argument that the instant invention is directed to a single shot slurry billet. The scope of the claim does not include that limitation.

e. With respect to the argument as appearing in page 12, last paragraph of the response it is noted that in Brauer et al the molten metal is provided by launder 56. The molten metal is transferred to the stirring device 58 to form a semi-solid slurry. The temperature of semi-solid slurry is lower than that of molten metal. Thus, the molten metal is cooled in the stirring device to form the semi-solid slurry.

f. In page 15 of the response applicants stated that the examiner misunderstood or mischaracterized the present invention. Applicants stated that while it might be possible to create a slurry billet of some composition faster than the time ranges indicated in the present application, if the quality of the cast part is unacceptable, the overall process is not "optimal". However, it is noted that the process steps of Brauer et al is virtually the same as that of instant invention as claimed, it cannot be visualized how the quality of the product will not be substantially the same as both optimize the process parameters. Further, since the cycle time also depends on the size of the product to be cast, it is apparent

Art Unit: 1725

that the smaller the product size to be cast the shorter the cycle time is going to be. Thus, the cycle time of Brauer et al will fall into the huge range as claimed when they cast a casting of small size.

g. In page 16, last paragraph of the response applicants stated that the examiner failed to provide prior art to shows the conventionality of the claimed features. However, it is noted that patent 4,569,218 to Baker et al shows the conventionality of using robotic arm for transferring article; patent 5,219,018 to Meyer and 4,321,958 to Delasus show the conventionality of using multiple phase, multiple pole stator for stirring molten metal; and patent 3,951,651 to Mehrahan et al and 3,948,650 to Flemings et al show the conventionality of adding particulate solid particles into the metal alloy for forming a MMC.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 1725


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 703-308-2322.

The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas X Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

May 5, 2003



KUANG Y. LIN
EXAMINER
GROUP 320
1725